Lower Columbia River Chinook Salmon ESU

Hatchery Program Assessment

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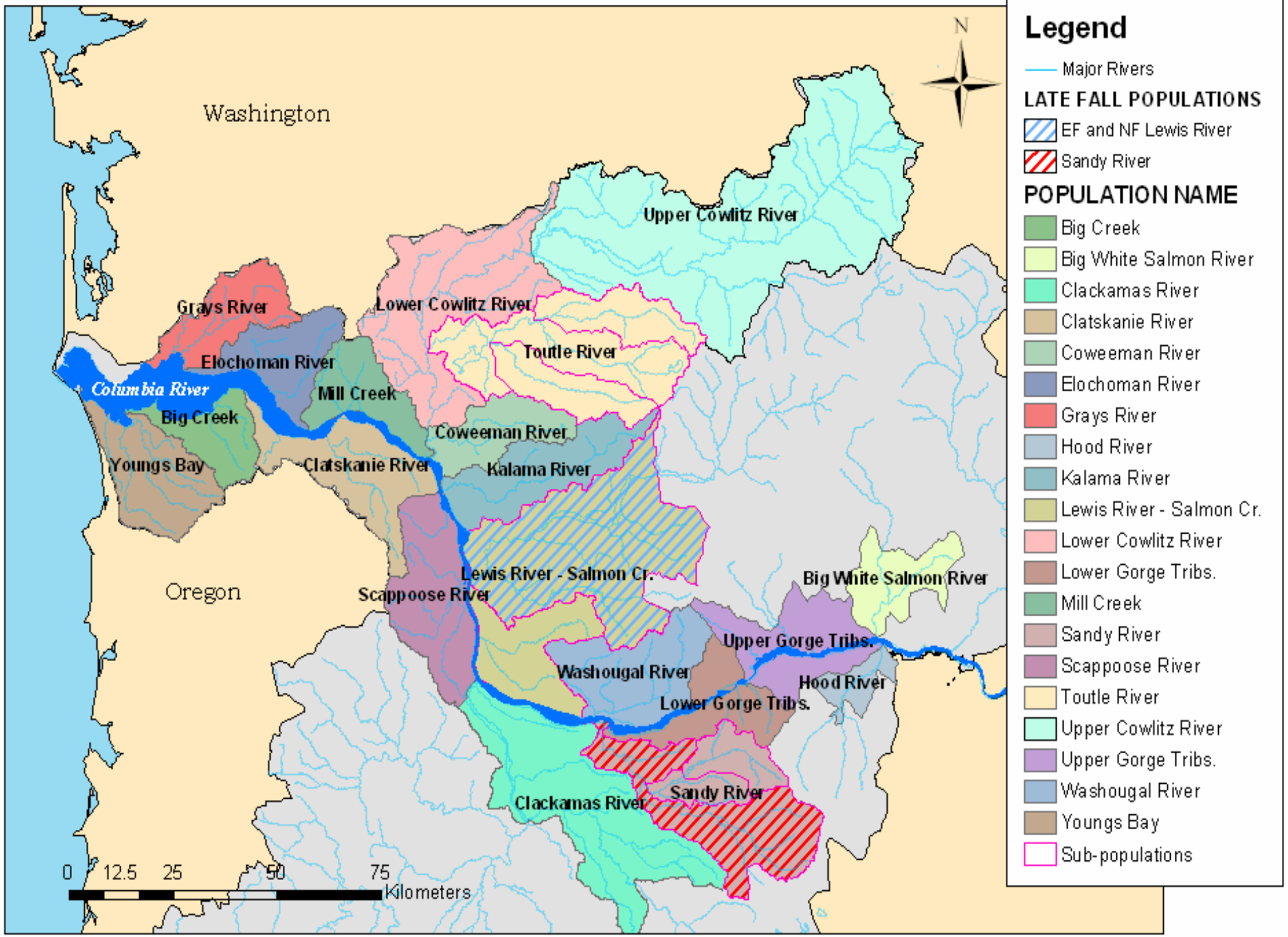
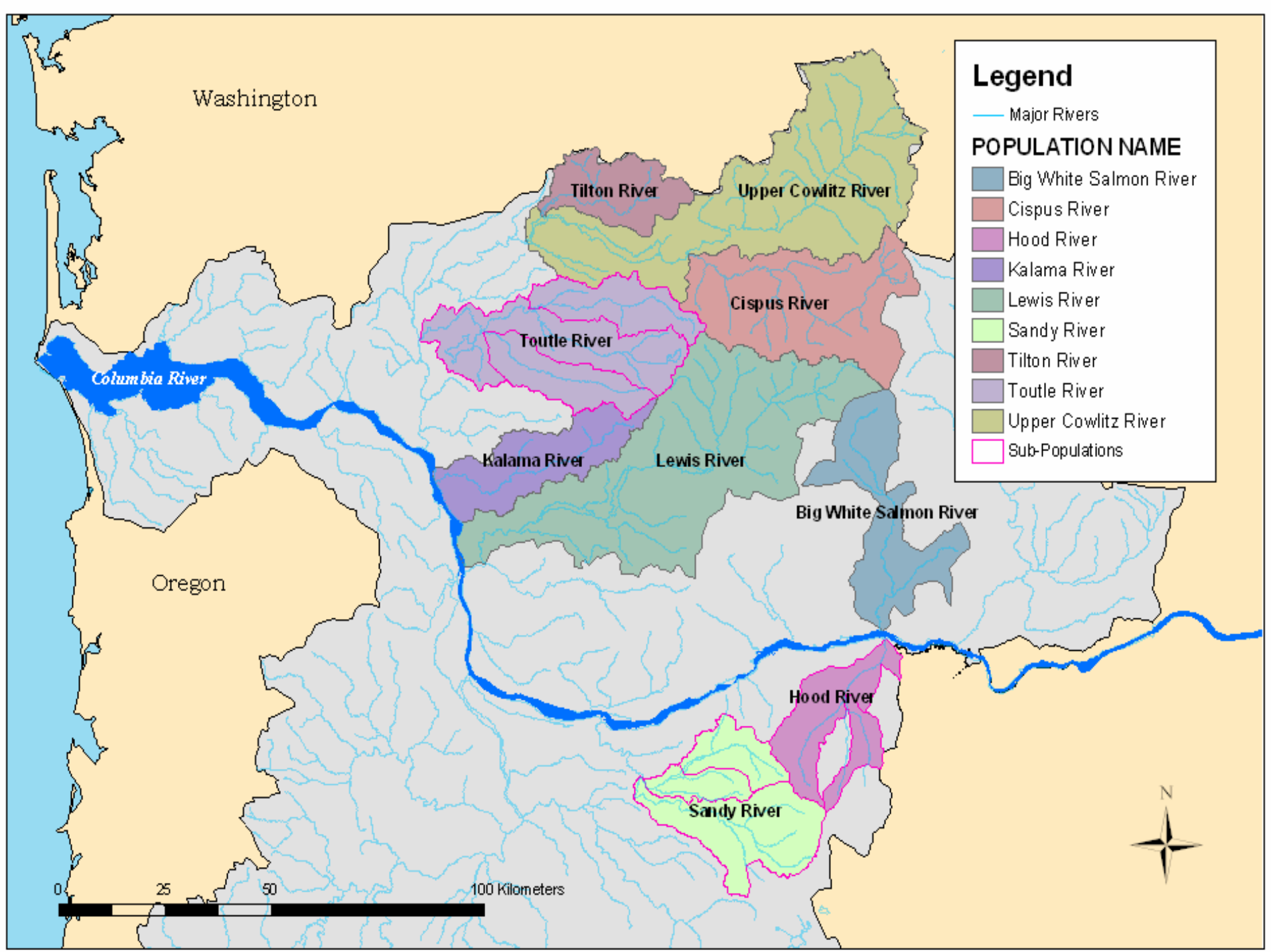
Salmon Recovery Division

Summary

- 31 Historic Populations in ESU
  - 20 Tule Fall Chinook Populations
  - 2 Late Fall Chinook Populations
  - 9 Spring Chinook Populations
- 8+ Populations considered extinct


Washington
Oregon
N
Upper Cowlitz River
Lower Cowlitz River
Toutle River
Grays River
Elochoman River
Columbia River
Mill Creek
Big Creek
Youngs Bay
Coweeman River
Kalama River
Clatskanie River
Lewis River - Salmon Cr.
Scappoose River
Big White Salmon River
Upper Gorge Tribs.
Washougal River
Hood River
Lower Gorge Tribs.
Sandy River
Clackamas River
0 12.5 25 50 75
Kilometers
Legend
Major Rivers
LATE FALL POPULATIONS
EF and NF Lewis River
Sandy River
POPULATION NAME
Big Creek
Big White Salmon River
Clackamas River
Clatskanie River
Coweeman River
Elochoman River
Grays River
Hood River
Kalama River
Lewis River - Salmon Cr.
Lower Cowlitz River
Lower Gorge Tribs.
Mill Creek
Sandy River
Scappoose River
Toutle River
Upper Cowlitz River
Upper Gorge Tribs.
Washougal River
Youngs Bay
Sub-populations


Washington
Oregon
Columbia River
Tilton River
Upper Cowlitz River
Cispus River
Toutle River
Kalama River
Lewis River
Big White Salmon River
Hood River
Sandy River
Legend
Major Rivers
POPULATION NAME
Big White Salmon River
Cispus River
Hood River
Kalama River
Lewis River
Sandy River
Tilton River
Toutle River
Upper Cowlitz River
Sub-Populations
0
25
50
100 Kilometers
N

LCR Chinook Salmon ESU

- 17 In ESU Artificial Propagation Programs
- 10 Tule Fall Chinook Programs
- 7 Spring Chinook Programs
- 8 Non ESU Artificial Propagation Programs

TRT Historical Populations and Artificial Propagation Programs Within the ESU

TRT Historical Population	Artificial Propagation Program
Youngs Bay Fall Chinook Run	
Grays River Fall Chinook Run	Sea Resources Tule Fall Chinook Program
Big Creek Fall Run	Big Creek Tule Fall Chinook Program
	Astoria High School (STEP) Tule Fall Chinook Program
	Warrenton High School (STEP) Tule Fall Chinook Program
Elcohoman River Fall Run	Elcohoman River Tule Fall Chinook Program
Clatskanie River Fall Run	
Mill Creek Fall Run	
Scappoose Creek Fall Run	
Upper Cowlitz River Fall Run	
Lower Cowlitz River Fall Run	Cowlitz Tule Fall Chinook Program
Coweeman River Fall Run	

TRT Historical Populations and Artificial Propagation Programs Within the ESU

TRT Historical Population	Artificial Propagation Program
Toutle River Fall Run	North Toutle Tule Fall Chinook Program
Kalama River Fall Run	Kalama Tule Fall Chinook Program
Lewis River/Salmon Creek Fall Run	
Clackamas River Fall Run	
Washougal River Fall Run	Washougal River Tule Fall Chinook Program
Sandy River Early Fall Run	
Lewis River Late Fall Run	
Sandy River Late Fall Run	
Upper Cowlitz River Spring Run	Cowlitz Spring Chinook Program
	Friends of Cowlitz Spring Chinook Program
Cispus River Spring Run	Cowlitz Spring Chinook Program

TRT Historical Populations and Artificial Propagation Programs Within the ESU

TRT Historical Population	Artificial Propagation Program
Tilton River Spring Run	
Toutle River Spring Run	
Kalama River Spring Run	Kalama River Spring Chinook Program
Lewis River Spring Run	Lewis River Spring Chinook Program
	Fish First Spring Chinook Program
Sandy River Spring Run	Sandy Spring Chinook Program
Lower Gorge Tributaries Fall Run	
Upper Gorge Tributaries Fall Run	Spring Creek NFH Tule Fall Chinook Program
Big White Salmon River Fall Run	
Hood River Fall Run	
Big White Salmon Spring Run	

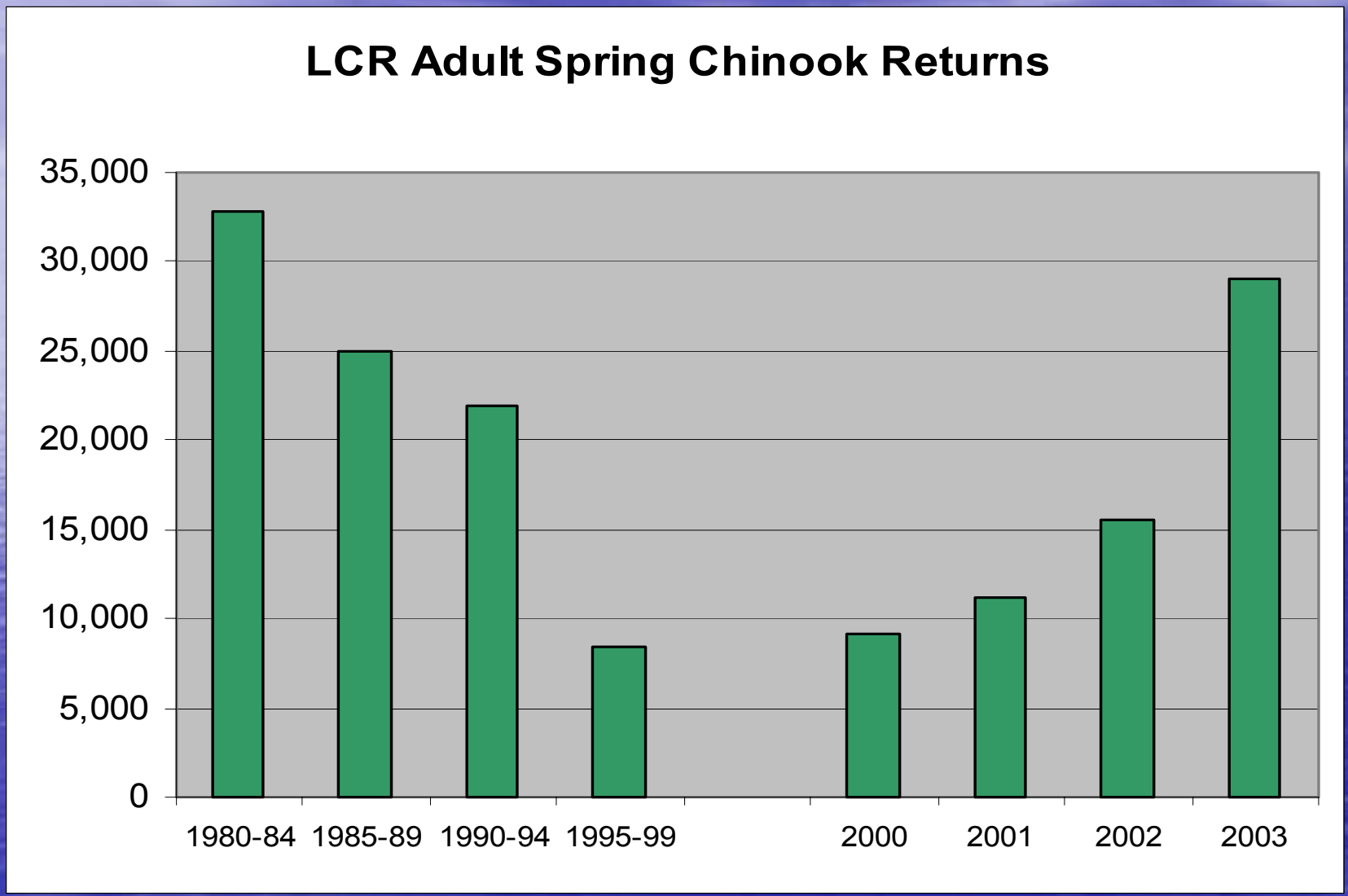
In ESU Artificial Propagation Program Releases (2004)

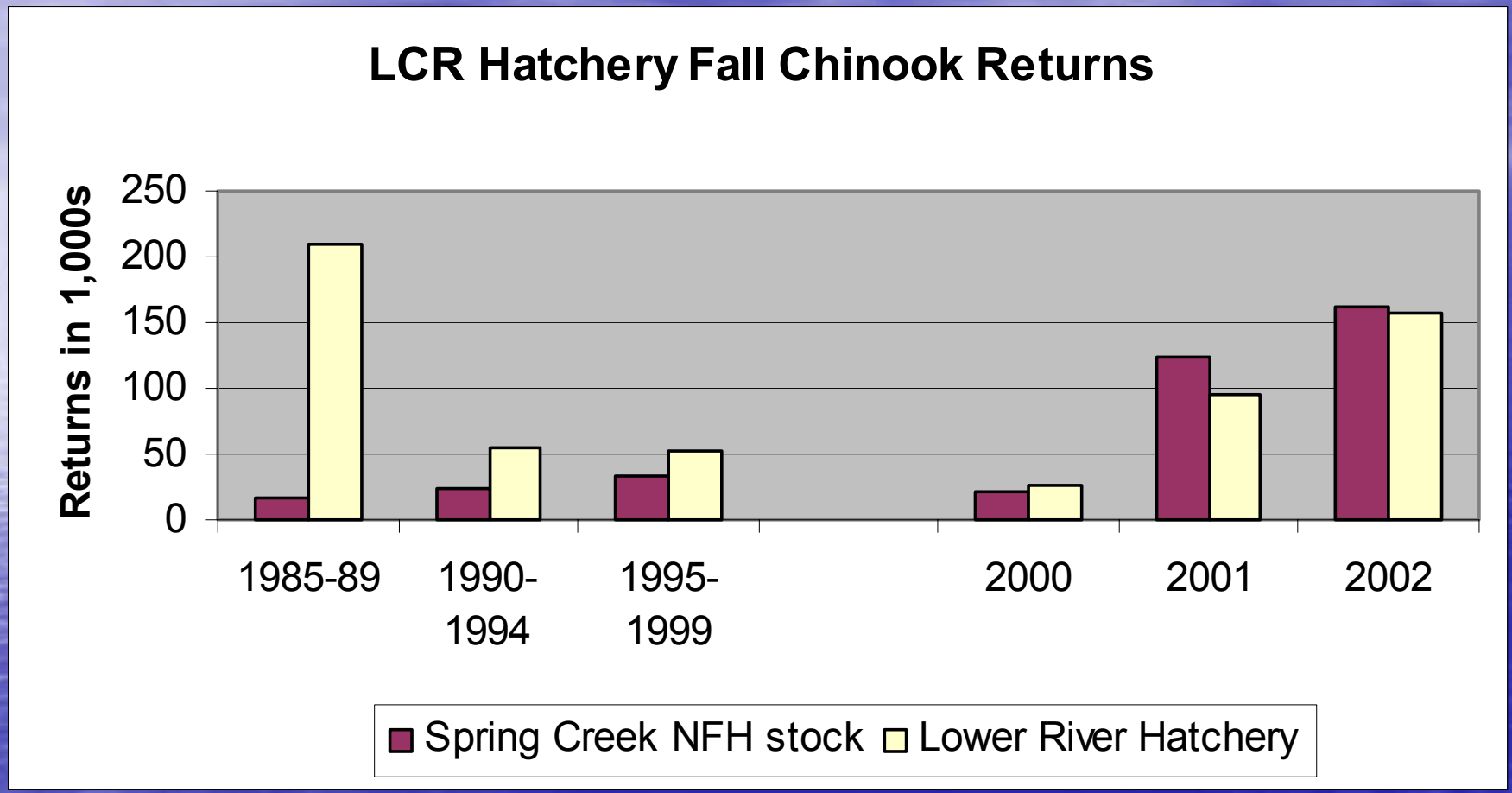
- Tule Fall Chinook Program Releases:

  39,435,000 subyearlings
- Spring Chinook Program Releases:

  2,852,000 smolts

  300,000 parr


LCR Adult Spring Chinook Returns
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1980-84
1985-89
1990-94
1995-99
2000
2001
2002
2003



Spring Creek NFH and Lower River Hatchery returns to the Columbia River. Note that 1985-89 returns reflect period of higher hatchery releases.

Artificial Propagation Programs Releasing Chinook Salmon that are not part of ESU

TRT Populations and Non-ESU Artificial Propagation Programs
Youngs Bay Fall Chinook Run : Select Area Brights (Rogue Fall Chinook) Program CEDC Spring Chinook (Willamette River Stock) Program
Grays River Fall Chinook Run: Deep River Net Pens Spring Chinook (Cowlitz Hatchery Spring Chinook) Program
Lower Gorge Tributaries Fall Chinook Run: Bonneville Hatchery Fall Chinook (URB) Program
Upper Gorge Tributaries Fall Run: Carson NFH Spring Chinook Program Little White Salmon NFH Fall Chinook (URB) Program Little White Salmon NFH Spring Chinook Program
Hood River Spring Run Hood River Spring Chinook Program (Re-introduction using Deschutes River spring chinook).

Non-ESU Artificial Propagation Program Releases (2004)

- Select Area Bright Fall Chinook Releases:
  2,250,000 subyearlings
- Upriver Bright Fall Chinook Releases:
  6,500,000 subyearlings
- Spring Chinook Releases:
  4,070,000 smolts

Hatchery Listing Policy

Effects of hatchery fish on the likelihood of extinction of an ESU, depend on how hatchery fish affect four key attributes.

Effects on Abundance of ESU

- Hatchery programs have increased the abundance of the ESU
- NORs produced from Cowlitz re-introduction program have increased from 128 in 2000 to 559 in 2003.
- Some hatchery programs have increased the abundance of naturally spawning populations
- Hatcheries programs have been successful in producing abundances

Effects on Productivity of ESU

- Unknown if spring chinook program in Upper Cowlitz Basin will be self-sustaining – passage survival currently not adequate

- Effects on productivity of naturally produced populations unknown

Effects on Spatial Structure of ESU

- Hatchery program have increased the spatial structure of the ESU
- Hatchery production supports natural spawning populations – without hatchery production natural spawning populations would not persist

Effects on Diversity of ESU

- Hatchery programs have increased diversity through re-introduction
- Hatchery programs have maintained diversity by supporting naturally spawning populations

Effect of Artificial Propagation on VSP Attributes

Viability Criteria	BRT VSP Risk Score	Decreases Risk	Neutral or Uncertain	Increases Risk
Abundance	3.2	√		
Productivity	3.7		√	
Spatial Structure	3.5	√		
Diversity	3.9	√		

Recommendation: No Change Threatened